# QUICK TREATMENT--FEWER FATALITIES

## HOSPITAL SHIPS OPERATING NEAR FRONT LINES GREATLY REDUCE COMBAT MORTALITY RATE

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Frequently within one-half hour from the time wounds are incurred on Korean battlefronts, members of our fighting forces are aboard the Navy's hospital ships, receiving the best medical treatment devised by science.

The speed with which complete medical treatment is provided is due largely to a change in concept of the mission of hospital ships. No longer are they simply vessels for evacuating casualties. They are now recognized as actual floating hospitals operating with forces close to the scene of cambat.

Provision of well-equipped hospitals near the front lines has greatly reduced the combat mortality rate. When major surgery is performed aboard hospital ships, serving as station hospitals for fighting forces, the patient is carried through a critical postoperative period of 10 days to 2 weeks. When critical operations are performed in field hospitals behind the lines, it is often necessary to move patients during the postoperative period because of rapidly changing battle conditions.

The altered concept of the mission of hospital ships was a design basis for the conversion of the newest of these vessels, the six ships of the HAVEN class. Use of the ships as floating hospitals required extensive planning by the Bureau of Ships and the Bureau of Medicine and Surgery in the incorporation of many new facilities aboard the vessels.

HAVEN class ships were converted during the latter part of World War II from Maritime Commission C-4 hulls. Started as C-4 types at Sun Shipbuilding Company, Chester, Pa., these ships were taken over by the Navy when nearly complete. They are full conversions, retaining only the basic original features.

Ships clearly marked:

The ships are: USS HAVEN (AH-12), USS CONSOLATION (AH-15), USS REPOSE (AH-16),USS SANCTUARY (AH-17), and USS BENEVOLENCE (AH-13). BENEVOLENCE sank after collision with another ship in a fog during reactivation trials in September 1950.

By international agreement, hospital ships must be clearly marked and brightly lighted at night. They are painted white with a horizontal green stripe extending around the hull. Red neon and painted crosses on the hull and stack make the ships identifiable from airplanes.

HAVEN class ships have eight decks, three below the waterline. All machinery spaces in the hulls are located aft, leaving the entire forward portion of the vessels for hospital spaces. This allows the hospital to be one unit; not built around the uptake spaces and machinery trunks, as in conventional ships. All treatment rooms and wards may be reached by wide continuous corridors.

Helicopter platform added:

Among the most important additions to these vessels since the beginning of the Korean conflict is a helicopter landing platform on the fantail of each ship in active status. The landing platform is equipped with a safety net along the sides and after end. Also provided are tie-down straps and wooden wheel chocks to keep the helicopter from rolling off the ship in rough weather. Two portable wind socks are being installed adjacent to the helicopter platform on each of the vessels to indicate direction of the wind when helicopters are landing. Illuminating lights enable the pilot to see the wind socks at night.

An alternate method to the helicopter landing platform has been the use of barges moored along the sides of the ship. This method was devised by Captain Cyril B. Hamblett, USNR, commanding officer of HAVEN, while that vessel was operating at Inchon, Korea, before the ship was equipped with a landing platform. The method is highly successful in harbors and offers some advantages over the stationary platform. With a barge moored on either side of the ship, four helicopters can be landed simultaneously.

The most critical casualties, particularly those with head, chest, and abdominal wounds, and traumatic amputations are flown to the ship by helicopter. In many instances blood transfusions and oxygen are administered to the patient during flight. For giving blood transfusions, a bottle-carrying rack has been designed to fit over litter handles so that a continuous flow of blood is assured during flight and while transferring the patient from the helicopter to the hospital space.

Patients are also brought to the ship by boat. Each hospital ship is equipped with two LCPL's, two 36-foot motor launches, and two 26-foot motor whale boats for use as ambulance boats. When the boat arrives alongside the ship, a jib crane, fitted with an electric winch, drops its wire slings to the craft and quickly hoists the litter or chair-borne patient aboard. Each ship has several such jib cranes for use as litter hoists. Welin davits, one port and one starboard on the vessel, are each capable of hoisting aboard an LCVP or other boat loaded with patients. Special slings and pallets permit the use of cargo booms for hoisting litters in the event other methods cannot be used. The highline method is used to transfer patients from other vessels to the hospital ship at sea.

Clear deck areas have been provided in the vicinity of the jib cranes, Welin davits, and helicopter landing platforms to facilitate rapid movement of patients to the inside of the ship. Within the ship, the wide, continuous passageways further speed stretcher movement. Fast vertical movement is accomplished by wide, gently sloping ladders and by two elevators on each vessel. Three stretchers can be handled in ecah elevator at one time by the use of a special dolly which permits stacking the stretchers.

Complete facilities available:

Once inside the hospital spaces, the patient finds for his care medical facilities equal to those available at any modern shore hospital.

The surgical suite and the various clinics and treatment rooms are located in the center of the ship where movement from pitch and roll is at a minimum. Facilities in the surgical suite include two major operating rooms, a fracture operating room, an anesthesia room, surgical supply room, clinical laboratory, and dispensary. The orthopedic surgical table in the fracture operating room was especially developed to provide for the full range of orthopedic procedures and to serve as a general operating table as well.

In the central surgical supply room and its adjacent spaces full equipment is provided for cleaning, processing, and sterilizing surgerical equipment for all operating rooms and wards in the ship. Passageways in the surgical suite are designed to permit use of the supply room, dispensary, and laboratory by wards and clinics in other parts of the vessel while operations are being performed. The surgical suite is easily accessible from both elevators and from two sets of ladders.

Dental clinic included:

The eye, ear, nose, and throat department of the vessel is a replica of successful shore installations. It is equipped with its own operating room, which can be used as a general operating room if necessary, three treatment rooms, one refraction room, and one examination room.

Each vessel has an optical repair unit to provide and repair spectacles.

The dental clinic has its own fully-equipped laboratory and X-ray and darkroom facilities.

The X-ray department of the hospital ship includes a record and appointment office, examination room, and the latest model shock-proof X-ray machines. All rooms in the department are lead-lined where necessary to prevent radiation leakage.

Hospital facilities also include a dermatology clinic and physiotherapy department and additional laboratories for various purposes.

Comfort and morale stressed:

Recently an electroencephalograph apparatus for study and treatment of brain injuries and diseases has been installed on each of the active hospital ships. In addition, there are decontamination facilities for atomic bomb victims.

The overall allowed medical staff complement for each vessel is 25 medical officers, three dental officers, 30 nurses, four medical service Corps officers, and 200 hospital corpsmen, including dental, laboratory, and operating technicians and spectacle dispensers.

Every possible means is provided to add to the patient's comfort and morale.

HAVEN class ships were the first naval vessels to be air conditioned throughout the living and hospital spaces. In addition, location of the crew and medical staff quarters, surgical suite, treatment rooms, and most medical offices below the waterline of the ship leaves the entire upper deck section for wards and recreation spaces.

Recreational activities important:

Care in the selection of color schemes for deck coverings bulkheads, overhead, and trim gives the ship interiors a cheerfull atmosphere. Deck coverings and surfaces were selected for easy cleaning and low maintenance work.

main deck lobbies, for and aft, are fitted with tables and chairs for use as lounges. On the main deck, off the lobby, is a patients' library, replenished each month with books. The wide open bridge deck is used for movies, shows, deck sports, and sun bathing.

Each bed has a five-channel entertainment system, with ear phones and pillow phones for ward patients. A master broadcast set provides long and short wave commercial radio broadcasts, music from two record turntables, and "live" broadcasts of programs given on the ship.

A disc recording service with trained operators is provided for use by patients unable to write home. The patient is notified in advance of the scheduled recording so that he will have ample time to prepare a message to his family. This system is considered superior to letters written by others, which lack the individual quality that the human voice can convey.

Meals are sent to the patients from the galley by food elevators. Diet pantries in the wards are equipped with vacuum food containers, electric steam tables, and heated cabinets for keeping the food hot. Special diets are prepared in the diet kitchen and are transported by a specially designed electrically heated food conveyor, which will serve up to 65 diets.

A 1,000 cubic-foot freeze compartment for foods is included in the refrigerator compartment of the ship. Two milk emulsifiers ("mechanical cows"), each with a capacity of 40 gallons, provide milk and milk products for patients and staff. Ice cream manufacturing equipment and stowage facilities make possible frequent servings to patients and crew.

Extensive service rendered:

Three HAVEN class vessels, CONSOLATION, HAVEN, and REPOSE are in an active status with the fleet. TRANQUILITY and SANCTUARY are inactive in the Reserve Fleet.

Hospital ships have established a splendid record for care

of the wounded in the Korean conflict. The first United States hospital ship to be sent to Korea was CONSOLATION. On her arrival there she berthed at Pusan, where she functioned as a base hospital and from where she made three trips to Japan to evacuate casualties. USS REPOSE arrived in Korean waters 20 September 1950, and USS HAVEN arrived there 18 October 1950, after being removed from mothballs to replace BENEVOLENCE.

All three ships have given extensive service while operating near scenes of bitter combat, proving their worth as station hospitals and for evacuation purposes. There were 40,662 admissions to the three ships from the third quarter of 1950 to the end of September 1952, including 14,113 combat casualties. In addition, large numbers of patients were treated but not admitted to the hospital.

Transports, LST's and other vessels also are used to evacuate casualties from battle zones of Korea to shore hospitals. these vessels are equipped to provide medical treatment during transportation.

Transports evacuated wounded:

Transports, including USS TRYON, USS PINKNEY, and USS BIXEY, and LST's were used to evacuate the wounded during World War II. Hospital ships, in addition to the HAVEN class, operated by the Navy during World War II, were: USS RELIEF, USS SOLACE, USS BOUNTIFUL, USS SAMARITAN, USS REFUGE, USS RESCUE, USS COMFORT, USS HOPE, and USS MERCY. COMFORT, HOPE, and MERCY were Navy ships operated by Navy crews but staffed with Army Medical Personnel. Since the war, the nine older ships have been transferred to other agencies.

The history of Navy hospital ships goes back to the outbreak of the Civil War, but the first to resemble the modern vessels of today were used in World War I.

USS RED ROVER was long believed to be the first Navy hospital ship, but USS INTREPID was later discovered to be the first.

Experiences of the earlier ships provided valuable infor mation for the design of the present vessels.

NEW MATERIAL TESTED:

Basic properties of fibrous glass-filled molding compounds have been determined in the laboratory, and trial applications of these materials in circut breakers, switches, terminal strips, and mounting supports are now being investigated. If these trials are successful, use of fibrous glass molded compounds may permit replacement of at least 75 per cent of the critical phenolic-asbestos molding compounds now used.